Rhizomnium nudum

This is a global PCA. I don't know if Michael did Idaho ones or not. I think he mentioned once that he was going to. CDC should have a range map of Idaho locations. The type locality is up by Mark Mousseaux, on Trail Creek. The Panhandle location on Trail Creek has not been relocated. Moussaux said there has been a lot of "activity" in the Trail Creek basin.

I guess it does grow by larger creeks, because it grow on the banks of Eldorado Creek. The big creeks are protected, though. It's the tiny creeks and moist depressions that need watching out for. It can also grow on rotten logs, like the buxbaumias.

Hope you can make sense of these weird codes....Any questions, give me a call. I did PCAs for Hookeria lucens and the Buxbaumias, too, if you need them. Or did I send them?

Sincerely,

Karen

Identifiers:
ELCODE
GNAME: *Rhizomnium nudum*
AUTHOR: (Britt. & Williams) T. Kop.
GCOMNAME: Naked mnium, naked round moss

Taxonomy:
MAJORGROUP: ENGLER: CRONQUIST:
TAXCLASS: Musci (or Bryopsida) ORDER: Bryales
FAMILY: Mniaceae GENUS: Rhizomnium
TAXDIST: TAXON.STAT:

ORIGPUBL: Britton, E.G. , and R.S Williams. 1900. A new species of *Mnium* from Idaho and Montana. The Bryologist 3: 6-7.

BESTTREAT.REF:
BESTTREAT.CIT: Koponen, T. 1973. *Rhizomnium* (Mniaceae) in North America. Ann. Bot.
Fennici 10: pp. 7-9 + figure 84 (distribution map).

TYPELOCALITY: U.S.A., Idaho, " In deep woods, Traille River Basin"
INFRA:
GENDESC: Plants 1-5 cm tall, forming loose, dark green tufts. Stems unbranched, reddish-brown with few or no rhizoids on leafy portion. Dioicous, the male plants often with few or no leaves on the lower part, but with large leaves that act as splash-cups surrounding the disk-like heads. The males have the appearance of green flowers. The fertile female plants bear single stalks, each with an ovoid, nodding or inclined capsule. The leaves are glossy and nearly round; they shrivel or contort very little when they dry. The leaf borders are of elongated cells, but they are only one layer thick at the apex of the leaf, and only a few layers thick below. The midrib of the leaf usually ends below the apex.

TECHDESC: " Plants dark green, loosely tufted. Stems reddish brown, erect, simple, 1-5 cm high, with rhizoids at the base, the rhizoids few or wanting on the erect part of the stem. Leaves only slightly contorted when dry, 4-9 x 3-7 mm, obovate to ± orbicular, the apex rounded or rarely slightly apiculate; costa often red, broad at base, tapering, usually ending before the apex, rarely percurrent; median leaf cells ± hexagonal or somewhat elongate in oblique rows, near the costa the cells 70-170 x 50-70 μ long, commonly 120-130 μ long, gradually smaller toward the margins, 30-60 μ long; in surface view the walls of the lamina cells apparently evenly thickened and not pitted, in section, except near the leaf apex, the horizontal walls thin and the vertical walls strongly thickened dorsally and ventrally with the middle part thin; marginal cells long and narrow in 1-2 rows near the apex, in 2-3 rows or rarely 4 rows below, the border unistratose at the apex and of 2-4 layers below, the walls of the border cells thick and pitted.

Dioicous, the male plants with perigonia terminal in disk-like heads, antheridia numerous and paraphyses orange in color, the stem leaves small and scale-like; outer perichaetial bracts large, obovate with an elongate base, the inner bracts often reduced and scale-like. Seta reddish-brown, 1-2.5 cm long or rarely longer, smaller in diameter at the top.

Capsule inclined to pendent, yellow-brown, ovoid, rounded to the seta, the neck scarcely differentiated, the urn 2.5 to 3.5 mm long, irregularly wrinkled when dry; exothecial cells short, the walls thin or somewhat thickened at the corners, the mouth bordered by several rows of smaller, thick-walled, dark-colored cells; stomata few, cryptopore, the guard cells covered; operculum conic-apiculate; annulus simple; peristome teeth greenish yellow, finely papillose below, the papillae larger above and arranged in lines, lamellae prominent; endostome yellow-brown, the basal membrane half or more the height of the peristome, segments with prominent papillae, open on the keel, cilia 2-3, long, nodose, strongly papillose. Spores 25-35 μ'' (Lawton 1971).

DIAGCHAR: Nude or naked stems (stems that lack rhizoids or micronemata in the upper, leafy portion) are characteristic. Large, more or less rounded leaves that do not shrivel or contort when dry. Lawton noted that the walls of the cells, when cross-sectioned, are ''thin in the middle, but thickened near the upper and lower surfaces of the leaf'' (Lawton 1964). *Rhizomnium glabrescens* also has stems without rhizoids, but it's leaves are oblong-ovate or elliptic, while those of *Rhizomnium nudum* are obovate to nearly round. In addition, the leaf borders of *Rhizomnium glabrescens* are thickened (several cells thick in cross-section). The leaf borders of *Rhizomnium nudum* are not thickened at the apex, although they may have 2-4 layers of cells near the leaf bases.

GTAXCOM:
Status:
GRANK: USESA; CITES: IUCN:
EXSITU EXSITUINST:
GPESTWEED:

GSTATCOM: Fairly common in Washington state and British Columbia. Considered rare in the Columbia River Basin (Christy & Harpel 1997).
In the 1994 ''Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl'', *Rhizomnium nudum* is identified as needing protection buffers (ROD 1994).
Oregon: G4S1
Alberta: G?S2
Idaho: Two known areas plus historical (1889) Trail Creek site.
Japan: ?
Russia: ?

Rhizomnium nudum requires shady, moist sites. Canopy removal could reduce shade. Excessive trampling by stock or hikers could damage some populations.

REGION: Canada/Alaska, US48, Asia,
REORIGIN: N
GTREND:
GTRENDCOM:
GRANGE:

GRANGECOM: In North America, in the Pacific Northwest from Alaska to northern California, with inland populations in northeast Oregon, northern Idaho, northwestern Montana, and Alberta. Also in Japan and Russian Far East.

Habit:
HEIGHTCODE: A HEIGHT: <10 cm
GROWTHHABIT: MOSS
RAUNKIER.FORM: Chamaephyte
DURATION: Perennial
Evergreen or wintergreen.
SUBSTRHABIT: TERRESTRIAL: Also can be EPIXYLIC (rotten logs)
HABITCOM: Grows on soil, humus, or rotten logs, often along streams or in damp depressions. Usually in conifer forests, from near sea level to subalpine zones.

Trophic Type:
TROPHICTYPE:Autotroph
TROPHICCOM:

Reproduction and Dispersal:
REPROSYSTEM:SEXUAL, dioicous, predominantly outcrossing, ASEXUAL, vegetative spread (forms mats), vegetative fragments
POLLENVECTOR: ABIOTIC: Water (Sperms require a film of water--the perigonial leaves of male *Rhizomnium nudum* plants act as splash cups).
DISPVECTOR: BIOTIC: (spores or fragments of the plant could be dispersed by animals or invertebrates). ABIOTIC: Water, wind
GREPROCOM: Spores dispersed by wind, water. Mosses can reproduce from fragments of plants, even a single cell. Therefore, it is possible that any of several agents (biotic or abiotic), could spread fragments.

Ecology:
TOLERTYPE:
Shade tolerant-C
Drought tolerant-A
NITROGENFIX: No capability
KNOWN PESTS: No known pests
GECOLCOM: Requires moist, shady environment.

Habitat
LATZONE: boreal and temperate
GMINELEV:
GMAXELEV:
GMARINE
GESTUATRINE
GRIVERINE: CREEK, SPRING/SPRING CREEK
GLACUSTRINE:
GPALUSTRINE:
GTERRESTRIAL: FOREST-CONIFER

SOILMOISTURE: Mesic
SOILPH: Unknown, probably medium acidic.
SOILTEX: Clay/silt; loam
loam
GEOLSUBSTRATE: SILT/CLAY; ORGANIC
GHABCOM: On damp forest soil, humus, or rotten logs, and along creek beds; occasionally among boulders or talus at cliff bases. From near sea level in Alaska and northern British Columbia to subalpine zones Washington and inland North America sites. Koponen (1973) states, "Ordinarily, the distribution of *R. nudum* seems to be determined by a cool and oceanic type of climate."

Management:
GMANAGECOM:
Standards and Guidelines for the management of nonvascular plants in the range of the Northern Spotted Owl specify that for *"Rhizomnium nudum*...Mitigation activities include surveying to determine presence and distribution; and where located, maintaining decay class 3,4, and 5 logs and greater than 70 percent closed-canopy forest habitats for shade. Shelter-wood and thinning prescriptions for timber harvest will cause [its] demise, as logs dry out." (ROD Appendix A 1994)

Economic attributes:
CROPRELATIVE:
ECONGENUS:
PRODMETHOD:
COMIMPORT:
ECONOMUSES:
NEGATTRIB:
ECONCOM:
References:

ILLUSTREF: Koponen, T. 1973. *Rhizomnium (Mniaceae)* in North America. Annales Botanici Fennici 10: 1-26.
PHOTOREF: none known
SOURCECODE:
CITATION:
Britton, E.G., and R.S. Williams. 1900. A new species of Mnium from Idaho and Montana. The Bryologist 3: 6-7.

Crum, H. 1965. *Mnium nudum* in Japan. The Bryologist 68: 118-119.

Christy, J.A., and D.H. Wagner. 1996. Guide for the identification of rare, threatened or sensitive bryophytes in the range of the northern spotted owl, western Washington, Western Oregon, and northwestern California. BLM, Portland, OR.

Christy, J.A., and J.S. Harpel. 1997. Rare bryophytes of the Columbia River Basin and Northern Great Basin, U.S.A. Journal of the Hatttori Botanical Lab. 82: 61-75.

Crum, H. 1965. *Mnium nudum* in Japan. The Bryologist 68: 118-119.

Ignatov, M.S. & O.M. Afonina (eds.) 1992. Check-list of mosses of the former USSR. Arctoa 1: 1: 1-85. Nobody has Arctoa---John Christy thought this was the source for *R. mudum* in USSR.

Koponen, T. 1971. A report on *Rhizomnium* (Mniaceae) in Japan. Journal of the Hattori Botanical Laboratory 34: 365-390. NOT AT UI__ TRY WSU

Koponen, T. 1973. *Rhizomnium (Mniaceae)* in North America. Annales Botanici Fennici 10: 1- 26.

Lawton, E. 1964. The structure and distribution of *Mnium mudum*. The Bryologist 67: 44-47.

Lawton, E. 1971. Moss flora of the Pacific Northwest. Hattori Botanical Laboratory, Nichinan, Japan. 362 pp. (Pages 199-200, Plate 110, figs. 1-9)

Noguchi, A. 1989. Illustrated Moss Flora of Japan. 5 Volumes. Hattori Botanical Lab. Nichinan, Japan. 1253 pages. (Pages 533-534) NOT AT UI___TRY WSU

Persson, H., and W.A. Weber. The Bryophyte Flora of Mt. McKinley National Park, Alaska. The Bryologist 61: 214-242.

ROD: Record of decision for amendments to Forest Service and Bureau of Land Management planning documents and standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the Northern Spotted Owl. 1994. U.S. Government Printing Office 1994-589-00001, Washington, D.C.

Schofield, W.B. 1972. Disjunctions in Bryophytes. Annals of the Missouri Botanical Garden 59: 174-202. (Map of world distribution)

Vitt, D. H. 1973. Distributional Studies on Byophytes of Alberta. The Bryologist 76: 505-510.

Record maintenance:

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